2. **Claim Rejections - 35 USC § 112**

3. Claim 20 has been amended to make it clear that cesium iodide doped with sodium is one material from which the scintillator may be selected and barium fluoride, calcium tungstate and sodium iodide are other such materials.

4. **Claim Rejections - 35 USC § 102**

5. The Examiner has rejected claims 1-5 and 20 under 35 USC 102(b) as being anticipated by Morton U.S. Patent No. 5,693,947.

This rejection is respectfully traversed. It is submitted that the Examiner's statement that Morton discloses "a co-planar thin layer of amorphous selenium-based multilayer structure (201, 203, 204 in Fig. 1; column 10, line 35 to column 11, line 23)" is incorrect. First, there are no such reference numbers in Fig. 1 of Norton. We presume that the Examiner meant Fig. 7. Irrespective, it is submitted that nowhere does Morton disclose a photoreceptor made of a thin layer of amorphous selenium-based multilayer structure. The material disclosed by Morton is hydrogenated amorphous silicon (a-Si:H) or polysilicon (p-Si). This is disclosed, for example, in column 5, lines 35-36; column 6, lines 60-61; column 7, lines 15-17; column 7, lines 24-28; column 7, lines 55-58; column 8, lines 46-47 where it is specifically stated that layer 201 is made of intrinsic a-Si:H and elsewhere. The only reference to amorphous selenium in the Morton patent is to the effect that the radiation converter may be made from it, but this is not a photoreceptor, nor a multilayer structure.

Consequently, Morton does not describe nor suggest an indirect x-ray image detector suitable for radiology that uses a photoreceptor made of a co-planar thin layer of amorphous selenium-based multilayer structure. There is no reference in Morton to such structure and certainly no indication whatsoever that it could be used as an indirect x-ray image detector.

6. **Claim Rejections - 35 USC § 103**

7. All claims in this application are commonly owned by all joint inventors.

8. Claims 6-11, 15-17 and 19 have been rejected as being unpatentable over Morton U.S. Patent No. 5,693,947 in view Schiebel et al. U.S. Patent No. 5,396,072 and Polischuk et al. U.S. Patent No. 5,880,472. This objection is again respectfully traversed.

For reasons discussed above, Morton is not applicable to the present invention since Morton does not give any hint that a photoreceptor made of co-planar thin layer of amorphous selenium-based multilayer structure can be used as an indirect x-ray image detector. Schiebel's patent concerns direct conversion which is irrelevant to the indirect detection of the present application. Polischuk's patent also concerns direct conversion and is oriented towards manufacturing processes for thick, pin or nip structures required for direct x-ray absorption. Therefore, a combination of these patents is neither proper nor appropriate against the claims of this application.

What the Examiner has attempted to do is to find individual "features" or "elements" somewhere in the prior art, and using hindsight of applicant's own disclosure, combine these features or elements to reject applicant's own claims. This is clearly not acceptable. As the CAFC states in *W.L. Gore et Associates, Inc. v. Garlock, Inc., 220 USPQ 303*:

> To imbue one of ordinary skill in the art with knowledge of the invention in suit, where no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher. (220 USPQ 312-313).

9. Claim 12 refers back to claim 6 which has already been discussed above. It merely specifies the thickness of the n and p layers within the scope of the present invention. It should be read in conjunction with the subject matter of claim 6 which itself refers back to claim 1. As

such, it should be found acceptable.

10. Claims 13 and 14 are again dependent claims which relate back to claim 1 and specify the preferred thicknesses of the photoreceptor multilayer structure. As such, they should be found acceptable.

11. With regard to claims 18 and 21, their originality resides in the combination of these claims with claim 1 by further providing a well-adapted refractive index and a hermetic housing for the indirect x-ray image detector of claim 1. As such, these claims should also be acceptable.

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently in the application are allowable and an early favorable action is accordingly solicited.

The Examiner is invited to call applicant's agent if any questions remain following review of this response.

Respectfully Submitted,

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MARKED-UP AMENDED CLAIMS 6, 10, 15, 16, 17, 18, 19, 20 and 21

6. (Amended) An x-ray image detector according to claim 1, in which the [photosensitive] amorphous selenium based multilayer structure is of n-i-p or p-i-n type, wherein the n-layer is a hole blocking layer, the p-layer is an electron blocking layer and the i-layer sandwiched between the n and p layers is an amorphous selenium layer doped with chlorine and arsenic.

10. (Amended) An x-ray image detector according to [any one of] claim 6, in which the p-layer is a thin layer of arsenic enriched amorphous selenium.

15. (Amended) An x-ray image detector according to claim 6, in which the light transparent biasing electrode is a co-planar indium tin oxide (ITO) layer positioned on top of the amorphous selenium based multilayer structure.

16. (Amended) An x-ray image detector according to claim 6, in which the amorphous selenium based multilayer structure is of the p-i-n type and the light transparent biasing electrode is set to a negative potential to provide the TFT with high voltage protection.

17. (Amended) An x-ray image detector according to claim 6, in which the amorphous selenium based multilayer structure is of the n-i-p type, and wherein a high voltage protective device is also provided shunting the storage capacitance.

18. (Amended) An x-ray image detector according to claim 1, in which the biasing electrode also serves to match indices of refraction of the scintillator and the amorphous selenium based multilayer structure.

19. (Amended) An x-ray image detector according to claim 1, in which the amorphous selenium based multilayer structure is optimized for electrical transport

where dark current is below 200pA/cm^2 and residual image is less than 5%.

20. (Amended) An x-ray image detector according to claim 1, in which the scintillator is made of [a material selected from] cesium iodide doped with sodium, [as well as] or from a material selected from barium fluoride, calcium tungstate and sodium iodide, emitting in the blue spectrum.

21. (Amended) An x-ray image detector according to claim 1, in which the photoreceptor of the amorphous selenium based multilayer structure, the biasing electrode and the scintillator are enclosed in a housing providing environmental, electric and mechanical protection.